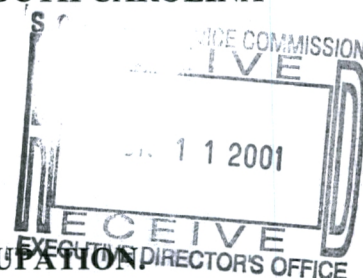1 **BELLSOUTH TELECOMMUNICATIONS, INC.**

2 **REBUTTAL TESTIMONY OF D. DAONNE CALDWELL**

3 **BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA**

4 **DOCKET NO. 2001-65-C**

5 **JUNE 11, 2001**

6

7 **Q. PLEASE STATE YOUR NAME, ADDRESS AND OCCUPATION.**

8

9 A. My name is D. Daonne Caldwell. My business address is 675 W. Peachtree St.,

10   N.E., Atlanta, Georgia. I am a Director in the Finance Department of BellSouth

11   Telecommunications, Inc. (hereinafter referred to as "BellSouth"). My area of

12   responsibility relates to the development of economic costs.

13

14 **Q. ARE YOU THE SAME D. DAONNE CALDWELL THAT PREVIOUSLY**

15   **FILED TESTIMONY IN THIS DOCKET?**

16

17 A. Yes. I filed direct testimony on February 16, 2001 and supplemental direct

18   testimony on April 25, 2001 and on June 4, 2001.

19

20 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

21

22 A. My testimony is devoted to responding to cost development issues raised in the

23   testimony filed by intervening parties. Specifically, I respond to allegations made

24   by Competitive Coalition witnesses Dean Fassett, Michael Starkey, and Don

25

-1-

1   Wood. Additionally, I will respond to the testimony of the Public Service

2   Commission of South Carolina's ("Commission's") witness, James McDaniel.

3

4   **COST DEVELOPMENT – GENERAL**

5   **Q. MR. STARKEY STATES THAT HE IS "CRITICAL OF BELLSOUTH'S**

6   **COST STUDY DOCUMENTATION." (STARKEY TESTIMONY AT**

7   **PAGE 3, LINE 21) HAS BELLSOUTH PROVIDED ADEQUATE**

8   **DOCUMENTATION IN ITS FILING?**

9

10   A. Yes. BellSouth's cost study is comprehensive such that one can follow the

11   development of an investment through to its monthly cost and work time input

12   through to nonrecurring cost. The cost study includes an Executive Summary,

13   Element Descriptions, Input Files, Output Files, Factor Development Files, and

14   Model Documentation. Thus, if one desires to trace the development of the

15   unbundled network element ("UNE") costs, this can be accomplished by reviewing

16   the various steps as detailed in the filing. BellSouth has pared down the amount of

17   paper filed due to the volume resulting from the deaveraging requirement;

18   however, the complete cost study is contained on CD-ROM. Additionally,

19   BellSouth has responded to data requests in South Carolina and in other states in

20   BellSouth's region concerning the assumptions that underlie inputs into the cost

21   study.

22

23   Q. ON PAGE 8, LINES 23-24, MR. STARKEY STATES THAT "COSTS FOR

24   UNBUNDLED ELEMENTS SHOULD BE MATCHED AS CLOSELY TO

25   THEIR UNDERLYING COSTS AS POSSIBLE." HAS BELLSOUTH'S

-2-

1   COST STUDIES FULFILLED MR. STARKEY'S COST METHODOLOGY

2   STANDARD?

3

4 A. Yes. BellSouth's cost analysts routinely interface with the product teams and

5   BellSouth's Network Department in order to ensure that the cost study accurately

6   portrays the forward-looking deployment guidelines that support the unbundled

7   network element being offered. Thus, there is a "match" between the cost result

8   and the unbundled element, i.e., the cost study and the element offered are "in-

9   synch". BellSouth witness Mr. Latham discusses the network architecture

10   underlying the various types of xDSL loops offered by BellSouth in his pre-filed

11   testimony.

12

13   In fact, Mr. Wood appears to be aware of the relationship between the definition of

14   the product and cost development since on page 17, he states that "[t]he

15   engineering constraints in the model must reflect industry practice and be

16   consistent with the cost object of the study." (Line 15) The product teams define

17   the "cost object" and that definition is reflected in the cost results. For example, if

18   the Technical Service Description ("TSD") limits the loop length (e.g., to 18kft) or

19   the loop composition (e.g., all copper), that is the "cost object" studied.

20

21 Q. YOU STATE THAT BELLSOUTH'S COST STUDIES ARE FORWARD-

22   LOOKING. SEVERAL OF THE WITNESSES, HOWEVER, DECLARE

23   THAT BELLSOUTH'S COST STUDY IS NOT FORWARD-LOOKING. IS

24   THIS ALLEGATION CORRECT?

25

1   A. Absolutely not. Through faulty reasoning, witnesses label both the recurring and

2   nonrecurring cost development as embedded and not forward-looking. With

3   respect to the recurring cost development, BellSouth's cost study reflects forward-

4   looking engineering assumptions associated with each unbundled network element

5   ("UNE") offered. I want to emphasize the last part of the preceding statement

6   because it is an important point - the description of the network element dictates

7   the "forward-looking" network assumptions that are relevant to the development of

8   the cost. Specifically, BellSouth's cost study for all xDSL loops, except for IDSL,

9   assumes an all-copper network because that is the way the loops have been

10   defined. IDSL loops are exceptions since ISDN/IDSL plug-ins for the digital loop

11   carrier systems are available. However, allowing digital loop carrier plug-ins for

12   other xDSL loops is tantamount to offering packet switching on an unbundled

13   basis – something BellSouth is not obligated to do.

14

15   Witnesses also allege that because BellSouth studied costs associated with

16   removing load coils and bridged tap that the nonrecurring costs are not forward-

17   looking. In fact, Mr. Starkey contends that because BellSouth studied Loop

18   Conditioning (BellSouth's Unbundled Loop Modification), it violated the Federal

19   Communications Commission's ("FCC's") rules. (Starkey Testimony, Page 10,

20   Lines 11-12) To the contrary, the FCC has addressed this very argument and ruled

21   that the incumbent local exchange carrier ("ILEC") has the right to recover the

22   costs associated with modifying the loop. The FCC states: "under our rules, the

23   incumbent should be able to charge for conditioning such loops." (FCC UNE

24   Remand Order, ¶193) Additionally, Mr. Fassett appears to be confused between

25   the assumptions that underlie the recurring cost study and the nonrecurring cost

-4-

1   study. On page 36 of his testimony, he implies that BellSouth included load coils

2   and bridged tap in the development of recurring loop costs. Let me assure this

3   Commission that this is not the case.

4

5   Let me explain the process BellSouth used to update the nonrecurring cost

6   information for this proceeding to ensure that they are forward-looking. Existing

7   input information (for example, data from the previous generic cost docket, Docket

8   No. 97-374-C) was gathered, and the different activities for each loop were

9   compared to other loops that had similar provisioning requirements. This

10   comparison was provided to the product teams for review, possible update, and

11   final concurrence.

12

13   The current product teams were provided these existing inputs as a starting point

14   for the product team's review. The product teams could accept, reject, or modify

15   those inputs. The original inputs also were obtained from network experts that

16   participated on prior product teams.

17

18 Q. **MR. WOOD'S TESTIMONY STATES THAT BELLSOUTH "HAS THE**

19   **INCENTIVE TO BROADLY OVERSTATE COSTS." (PAGE 11, LINE 12)**

20   **PLEASE COMMENT.**

21

22 A. Mr. Wood is incorrect in his assessment. The objectives of the cost analyst are to:

23   (1) develop costs that are as accurate as possible; (2) develop costs that adhere to

24   the rulings that come from both the FCC and from this Commission; and (3)

25   develop costs that reflect expenditures that will be made by BellSouth on a going-

1   forward basis in South Carolina when a Competitive Local Exchange Carrier

2   ("CLEC") places an order.

3

4   Let me reiterate that BellSouth has no desire to develop costs that are unreasonable

5   in an attempt to make the CLEC pay more than what is justified, nor do the cost

6   analysts engage in any type of "mischief" as stated periodically in Mr. Wood's

7   testimony. BellSouth's cost analysts obtain inputs from the product teams based

8   on the caveat that these inputs should reflect projections of future network

9   enhancements, process improvements, and any other anticipated changes such that

10   the input represents a least-cost, forward-looking scenario. Thus, contrary to Mr.

11   Wood's contention, BellSouth's costs are not "broadly overstated." In fact, the

12   costs that result from a TELRIC methodology will understate the cost BellSouth

13   actually incurs today. Additionally, BellSouth does not "shift costs from one rate

14   element to another in a way that supports its competitive objectives and interests,"

15   as Mr. Wood claims on page 11, lines 14-15.

16

17   **Q. ON PAGE 10 OF HIS TESTIMONY, MR. WOOD STATES THAT THE**

18   **EIGHTH CIRCUIT COURT'S DECISION TO VACATE FCC RULE**

19   **51.505(B)(1) DOES NOT REQUIRE A CHANGE TO BELLSOUTH'S**

20   **EXISTING COST METHODOLOGY. PLEASE COMMENT.**

21

22   A. First, the question on page 8, lines 6-9 of Mr. Wood's testimony misrepresents

23   what I stated in my direct testimony. Nowhere did I state that a "different cost

24   methodology should now be considered." To the contrary, I stated in my direct

25   testimony that "BellSouth has not fully evaluated the impacts of the Court's

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1   decision on the cost methodology for UNEs; further, the full impact of that

2   decision will not be known until the appeal process is concluded." It would be

3   impossible to develop or support any change to cost methodology until the final

4   ruling is made; however, the potential for future revisions to cost methodology

5   exists.

6

7   In order to appreciate the pending impact of the Eighth Circuit's ruling, one must

8   also consider other relevant portions of the FCC's Rule 51.505 that the Eighth

9   Circuit did not vacate. Rule 51.505(a) states that "[t]he forward-looking economic

10   cost of an element equals the sum of : (1) the total element long-run incremental

11   cost of the element, as described in paragraph (b); and (2) [a] reasonable allocation

12   of forward-looking common costs, as described in paragraph (c)."

13

14   Rule 51.505(b) states: "[t]he total element long run incremental cost of an element

15   is the forward-looking cost over the long run of the total quantity of the facilities

16   and functions that are directly attributable to, or reasonably identifiable as

17   incremental to, such element, calculated taking as a given the incumbent LEC's

18   provision of other elements."

19

20   Rule 51.505(b)(1) states: "[t]he total element long-run incremental cost of an

21   element should be measured based on the use of the most efficient

22   telecommunications technology currently available and the lowest cost network

23   technology currently available and the lowest cost network configuration, given the

24   existing location of the incumbent LEC's wire centers."

25

1   In vacating Rule 51.505(b)(1), the Eighth Circuit eliminated the requirements for

2   the Total Element Long Run Incremental Cost ("TELRIC") portion of cost

3   development, as described in Rule 51.505(a) above, to be based on the FCC's

4   efficient network configuration standard. The Eighth Circuit held that the FCC's

5   hypothetical network TELRIC standard "violates the plain meaning of the Act,"

6   finding that the Act requires that rates be based on:

7

8   the cost ... of providing the interconnection or network
     element ... not the cost some imaginary carrier would incur

9   by providing the newest, most efficient, and least cost
     substitute for the actual item or element which will be

10   furnished by the existing ILEC pursuant to Congress's
     mandate for sharing. Congress was dealing with reality, not

11   fantasizing about what might be.

12

13   Because the Eighth Circuit eliminated the most efficient, least-cost network

14   requirement, the remaining FCC rules require costs to reflect the total long run

15   forward-looking cost of facilities actually used to provide a UNE. Consequently, if

16   the Eighth Circuit's Ruling holds, the costs BellSouth filed are below the level that

17   the Eighth Circuit believes are appropriate and changes to the underlying

18   methodology will need to be made. As I stated in my direct testimony, however,

19   the full impact of that decision will not be known until the appeal process is

20   concluded. Thus, BellSouth has not attempted to adjust its cost methodology to

21   incorporate anticipated changes from the Eighth Circuit Court's Ruling in this

22   filing, nor is it advocating a change to cost methodology at this time.

23

24   Q. **HAVE YOU EVER "SUGGEST[ED] THAT IF THE EIGHTH CIRCUIT'S**

25   **RULING IS UPHELD THE CHARACTERISTICS OF BELLSOUTH'S**

1   **EMBEDDED NETWORK MAY BE USED," AS MR. WOOD STATES?**

2   **(WOOD TESTIMONY, PAGE 9, LINES 15-16)**

3

4   A.   No. I do not want to belabor this discussion of the potential outcome of the

5   Supreme Court's review of the Eighth Circuit's ruling, but Mr. Wood

6   misrepresented BellSouth's position and thus, it warrants a reply. The Eighth

7   Circuit's ruling found that the FCC was within its authority to reject embedded

8   costs and BellSouth agrees with this finding. Embedded costs are inappropriate for

9   any long run study. The point that is being debated is the use of proxy models.

10   These models reflect a network that will never be attainable, even in the long-run,

11   since they ignore the realities of the existing infrastructure, e.g., existing conduit

12   runs, rights-of-way, and technology mix. Proxy models also ignore the realities of

13   transitioning from the existing network to the "forward-looking" network, i.e., an

14   immediate transformation to the forward-looking design is assumed. Of course,

15   this will never happen, instead there will be a gradual movement toward the

16   forward-looking architecture.

17

18   As required by the FCC's TELRIC methodology, BellSouth's cost studies currently

19   do reflect forward-looking technologies and provisioning practices. Thus, the

20   projection of technologies and work times does not reflect the actual costs

21   BellSouth will incur. In fact, it does not reflect what costs BellSouth will incur

22   during the study period. If the Eighth Circuit's ruling holds, BellSouth may revisit

23   some of the current inputs to adjust them to reflect the study period instead of some

24   unspecified time in the future. For example, the amount of Next Generation

25   Digital Loop Carrier ("NGDLC") based on TR303 protocol may be reduced to

1   some more attainable level over the study period.

2

3   Q. DO YOU BELIEVE THAT THE "COMMISSION SHOULD PERMIT

4   BELLSOUTH SOME FLEXIBILITY IN ITS CHOICE OF INPUTS IN

5   ORDER TO 'FUDGE' THE RESULTS UPWARD," AS MR. WOOD

6   CLAIMS? (WOOD TESTIMONY, PAGE 10, LINES 10-12)

7

8   A. No. Mr. Wood has formed his own conclusion, based on his distorted

9   interpretation of my statement concerning the potential cost methodology changes

10   resulting from the Eighth Circuit's ruling. His unfounded statement arises from his

11   "rationale," not mine. My only intent was to inform this Commission of the

12   implications of the Eighth Circuit's ruling, not to ask for the latitude to "fudge"

13   numbers. That is unnecessary since BellSouth has not adjusted its inputs

14   "upward," as Mr. Wood alleges. Mr. Wood's innuendoes are misguided. As I

15   have explained previously, the objective of the cost study is to accurately

16   determine the TELRIC economic costs of providing unbundled elements to

17   CLECs.

18

19   Q. ON PAGE 13, MR. WOOD STATES THAT IT IS "NOT NECESSARY TO

20   DEBATE WHETHER BELLSOUTH INTENDED FOR CERTAIN RATE

21   CONSEQUENCES TO FOLLOW FROM DECISIONS MADE DURING ITS

22   COSTING PROCESS." DO YOU AGREE?

23

24   A. While I agree with Mr. Wood's statement, I find it rather telling that Mr. Wood

25   limited this comment to a footnote. He spent a multitude of pages in an attempt to

-10-

1   cast doubt on BellSouth's cost methodology and cost results through the use of

2   vague and unsupported allegations. To use such terms as "fudge costs", "shift

3   costs", "overstated costs", etc., implying deliberate motives by BellSouth to

4   inappropriately alter costs and then to say that whether or nor "intent" was

5   involved is rather hypocritical. Additionally, I have never "urge[d] this

6   Commission to avoid making any changes to the inputs and assumptions utilized

7   by BellSouth in its cost studies," as Mr. Wood states on page 29. I believe that the

8   inputs and assumptions utilized by BellSouth are appropriate and reflective of the

9   costs BellSouth will incur on an on-going basis. As usual, I respectfully request

10   this Commission to adopt BellSouth's cost study and cost results.

11

12   **RECURRING COSTS**

13   **BSTLM©**

14   **Q. MR. WOOD ARGUES THAT CERTAIN "FIXED" INVESTMENTS SUCH**

15   **AS, DIGITAL LOOP CARRIER ("DLC") COMMON EQUIPMENT AND**

16   **FIBER CABLE SHOULD NOT BE ALLOCATED TO THE SERVICES**

17   **USING THOSE FACILITIES ON THE BASIS OF DS0 EQUIVALENTS.**

18   **HE ARGUES THAT ALLOCATION SHOULD INSTEAD BE BASED ON**

19   **PAIR EQUIVALENTS. (PAGES 44-46) DO YOU AGREE WITH HIS**

20   **APPROACH?**

21

22   A.   Absolutely not. The best approach of assigning investment of items, such as DLC

23   common equipment and fiber facilities, is on the basis of DS0 equivalents. This

24   _____

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1   methodology represents a reasonable approach since the equipment in most cases

2   is actually sized based on DS0 equivalents. In fact, the BSTLM uses DS0

3   equivalents not only to assign "fixed" investments among services, but it also uses

4   DS0 equivalents to size the equipment. Therefore, if pair equivalents were used to

5   assign the fixed costs, the capacity requirements of the DLC optical equipment

6   would be inappropriately reduced. To illustrate my point, a DS1 requires 24 DS0s

7   or 2 pairs. Using 2 lines instead of 24 DS0s as input, the BSTLM would size the

8   equipment to support only 2 DS0s, not the 24 DS0s that are really required. The

9   bottom line is that this adjustment proposed by Mr. Wood inappropriately

10   understates the equipment requirements generated by the BSTLM and therefore,

11   understates the costs. For this reason alone, this Commission should disregard his

12   loop results. BellSouth witness Mr. Stegeman discusses this issue further in his

13   rebuttal testimony.

14

15   Q. HAS ANY COMMISSION IN BELLSOUTH'S REGION FOUND IT

16   APPROPRIATE TO USE DS0 EQUIVALENTS TO ALLOCATE "FIXED"

17   COSTS?

18

19   A. Yes. In its May 25, 2001 Order in Docket No. 990649-TP, the Florida

20   Commission found that: "[o]f the two factors, competitive impact or causal

21   linkage, we believe that where possible, cost causal connections should get the nod

22   when designing cost models. Thus, based on the evidence, we find that the

23   BSTLM method of allocating shared investments based on DS0 equivalents is

24   reasonable." (Order No. PSC-01-1181-FOF-TP at page 134) In that docket,

25   AT&T presented similar arguments to those currently advanced by Mr. Wood. It

1   is important to note that, contrary to Mr. Wood's claim, the Florida Commission

2   recognized that the "principle of cost causation" is met through the use of DS0s.

3

4 Q. MR. WOOD CLAIMS THAT BELLSOUTH HAS NOT DEMONSTRATED

5   THAT THE USE OF DS0s REFLECTS COST-CAUSATION. (WOOD

6   TESTIMONY, PAGE 38) PLEASE COMMENT.

7

8 A. Obviously, BellSouth has demonstrated "beyond prefiled testimony" that there is a

9   cost-causative relationship since the Florida Commission has recognized this fact

10   in its order. I would like to attempt to clarify Mr. Wood's reference to my

11   statements that supposedly "completely igonor[e] the type of DLC systems" being

12   deployed by BellSouth. Since Mr. Wood failed to provide a specific source for

13   this statement, however, I'm forced to assume that he is referring to the Louisiana

14   hearings in Docket No. U-24714. During that hearing, I used the SLC-96 DLC

15   merely as an example to demonstrate that the DS0 approach is appropriate from a

16   cost methodology perspective. I used the SLC-96 because the system is commonly

17   deployed today. I had no intention of portraying that technology as "forward-

18   looking." The explanation I made in Louisiana, however, also holds for the

19   NGDLC that is considered in BellSouth's cost study.

20

21 Q. ON PAGES 33-34, MR. WOOD OUTLINES 9 PROPOSED INPUT

22   CHANGES TO THE BSTLM. PLEASE COMMENT.

23

24 A. Each of the proposed input changes is inappropriate. I explain why in more detail

25   below.

-13-

1

2 Q. THE FIRST INPUT MR. WOOD ADJUSTS IS THE CUTOVER POINT

3   FOR THE USE OF EXTENDED RANGE CARDS. PLEASE COMMENT.

4

5 A. Mr. Wood contends that the cutover point should be moved from BellSouth's

6   14,800 feet to 13,000 feet. BellSouth's input is based on resistance design

7   calculations for 24-guage cable. Thus, there is mathematical support for

8   BellSouth's input while there is none provided by Mr. Wood. If accepted, his

9   adjustment will, in fact, increase the cost to serve those customers whose distance

10   between the DLC and the network interface device is between 13,000 feet and

11   14,800 feet. For these customer locations, the BSTLM will use the more

12   expensive extended range line cards rather than the normal POTS cards.

13

14 Q. MR. WOOD CHANGED THE AVERAGE LENGTH FROM FLOOR TO

15   FLOOR IN A BUILDING FROM 25 FEET TO 11 FEET. IS THIS

16   REASONABLE?

17

18 A. Absolutely not. While 11 feet could be a minimum distance between the floors of

19   certain buildings, it is not reflective of the amount of cabling required to connect

20   terminals between floors, which is the real input the BSTLM requires. Mr.

21   Wood's 11 foot input would require that the terminals on each floor of the building

22   be located directly above each other, which they rarely are. Even if such an

23   arrangement existed, his input allows no slack cabling for splicing or other work.

24   Thus, his 11 foot input "revision" should be rejected.

25

-14-

1 Q. MR. WOOD INCREASED THE DLC REMOTE TERMINAL FILL AND

2   THE FEEDER FIBER FILL. ARE HIS CHANGES CONSISTENT WITH

3   THE INTENT OF THE BSTLM INPUT VARIABLE?

4

5 A. No. All of the input fill variables are intended to represent the engineering fill

6   level. That is, the level of fill that, when the next unit (e.g., loop or fiber) comes

7   on line, the re-enforcement of the equipment is initiated. Effectively, it is the

8   objective capacity for the equipment. It recognizes the fact that time is needed to

9   plan, engineer, and install re-enforcement capacity. This fill is used by the model

10   to size the equipment.

11

12   If plant is designed at high fill levels, such as those proposed by Mr. Wood, the

13   effect will be the crippling of BellSouth's efforts to provide quality service in a

14   timely manner. BellSouth chose 70% fill based on the fact that BellSouth's DLC

15   fill has consistently been below 70%. Additionally, setting any fill, in this case the

16   fiber feeder fill, to 100% is totally unreasonable and violates sane engineering

17   rules.

18

19 Q. MR. WOOD RECOMMENDS CHANGING THE DLC MINIMUM LINE

20   LIMIT FROM 10 TO 1800. IS THIS CHANGE CONSISTENT WITH THE

21   INTENT OF THE BSTLM INPUT VARIABLE?

22

23 A. No. This variable is part of the BSTLM modeling effort to follow engineering

24   design rules for Carrier Serving Areas ("CSA") while also limiting the total

25   number of DLC sites. Ideally, the value allows the stretching of the engineering

-15-

1   design limit so that the model reduces the installation of DLC sites that serve very

2   few customers.   The BSTLM cannot totally eliminate the installation of CSA sites

3   to serve just a few customers, due to the forward-looking design and natural

4   dispersion of customers. As stated in the BSTLM documentation, the model uses

5   a soft and hard limit for copper distribution design. The soft design is the

6   engineering design value, while the hard limit represents the physical design limit

7   (the value never to be exceeded). The DLC Minimum Line Limit value controls

8   how many lines are allowed to exceed the soft limit. This value is based on the

9   fact that it is more effective to install another DLC site than to incur the extra costs

10   of lower gauge cabling and the use of extended range line cards. By setting the

11   value to 1800, what Mr. Wood has done is to ignore the Customer Serving Area

12   ("CSA") design criteria – he has virtually ignored the length limitations. For these

13   reasons, Mr. Wood's adjustment should not be accepted.

14

15 **Q. MR. WOOD PROPOSES CHANGING THE COPPER SOFT LIMIT FROM**

16 **12,000 FEET TO 15,999 FEET AND THE COPPER HARD LIMIT FROM**

17 **13,000 FEET TO 16,799 FEET. ADDITIONALLY, HE PROPOSES**

18 **CHANGING THE DLC SOFT LIMIT FROM 12,000 TO 15,999 FEET AND**

19 **THE DLC HARD LIMIT FROM 18,000 TO 16,799. HE ALSO**

20 **SIGNIFICANTLY INCREASES THE 26/24 GAUGE CROSSOVER**

21 **POINTS. ARE HIS PROPOSALS VALID?**

22

23 A. No. The BSTLM follows CSA guidelines in establishing the recommended 12,000

24   feet limits. The copper hard limit were set to allow the model to "stretch" the soft

25   limit in situations where the model could extend the copper to serve additional

-16-

1   customer sites on the same cable medium. Mr. Wood's soft limit proposals (and

2   his hard limit proposals) are not in line with CSA guidelines. BellSouth bases its

3   proposed crossover points from 26 gauge cable to 24 gauge cable on engineering

4   guidelines. His proposed crossover points are well beyond those guidelines.

5   Again, the Commission should reject these "modifications".

6

7   **Q. MR. WOOD PROPOSES CHANGING THE MINIMUM NUMBER OF**

8   **PAIRS TO BE PLACED FOR EACH HOUSING UNIT FROM 2.0 TO 1.5**

9   **PAIRS. HE ALSO PROPOSES REDUCING THE MINIMUM NUMBER**

10   **OF PAIRS PER BUSINESS LOCATION FROM 6 TO 3 PAIRS. DO YOU**

11   **AGREE WITH HIS PROPOSALS?**

12

13   A. No. First, the number of distribution pairs placed per housing unit, in reality,

14   depends on the expectations for additional line demand in the area. In some areas,

15   BellSouth may place 4 or even more pairs per housing unit. In other areas, less

16   pairs may be placed. From that perspective, and in light of the ever-increasing

17   demand for additional lines, 2 pairs per housing unit is very conservative.

18   I'm very confused by Mr. Wood's suggestion to change this input. In his

19   testimony, Mr. Wood states that because he has never been an outside plant

20   engineer, he must rely on others (specifically naming Mr. Fassett) to support his

21   input proposals. In the recent Alabama hearing in Docket No. 27821, Mr. Fassett

22   was being crossed about sizing the distribution portion of the network as follows:

23   Q.   The facilities that run down the streets in the subdivisions
            are generally what size cables? Can you generalize?
24

25   A.   That run down the distribution portion we're talking about?

-17-

Q. The distribution plant the runs down the streets of the subdivision, can you generalize?

A. It's going to depend on, again, the area that you're feeding. You're going to size that distribution cable to provide normally two pairs per living unit. So .....

Thus, it appears Mr. Wood has ignored his own expert.

Further, the BSTLM as filed by BellSouth, only builds to existing BellSouth customer locations rather than households or housing units. BellSouth would actually place adequate cable pairs to provide service, and additional line demand, to all households – not just to existing BellSouth customer locations. This reinforces the fact that the 2 pairs per existing BellSouth customer location input is conservative. As to the minimum pairs per business location, the BSTLM does not use this input. During the development of the model, it was believed that this input would be needed, but the final version of the model does not use this variable. Instead the actual number of pairs required, based on the services at the business location, is used.

Q. MR. WOOD SETS THE MINIMUM FIBER CABLE SIZE AT 6 STRANDS. IS THIS APPROPRIATE?

A. No. BellSouth does not purchase fiber cable in sizes smaller than 12 fibers, except in the limited situations where BellSouth is placing fiber distribution to the curb. Further, fiber in the distribution portion of the network is not appropriate since the use of copper distribution reflects the least-cost method deploying the narrow-band network associated with unbundled network elements.

-18-

1

2 Q. MR. WOOD ADVOCATES USING 8 NODES PER FIBER FEEDER RING

3   RATHER THAN BELLSOUTH'S 4 NODES. PLEASE COMMENT.

4

5 A. Mr. Wood's rationale for this change, as stated on DJW-4, is "Regionally

6   applicable "loaded" investments" which makes no sense. The BSTLM network

7   design assumes OC3 rings for the fiber feeder. Four nodes equate to three remote

8   terminal sites and one central office terminal. Each node on the fiber ring

9   increases the total amount of traffic carried by that ring. It has been BellSouth's

10   experience that introducing more than 3 remote sites on the ring exhausts the

11   capacity of the ring. Thus, considering 8 nodes per ring is not appropriate.

12

13 Q. DO YOU HAVE FURTHER COMMENTS ON MR. WOOD'S EXHIBIT

14   DJW-4 WHICH CONTAINS HIS PROPOSED BSTLM INPUT CHANGES?

15

16 A. Yes. Mr. Wood utilizes regressions in order to develop several of his inputs. This

17   is an appropriate method of identifying input variables when only certain data

18   points are known. It is Mr. Wood's selective use of this approach that is

19   inappropriate. Mr. Wood's Exhibit DJW-4 shows that he has revised the material

20   prices for the COT Fiber Termination, without any discussion in his testimony.

21   Instead of using a regression analysis, which he has done for other inputs, Mr.

22   Wood arbitrarily took BellSouth's material price for a 12-fiber termination and

23   used that as a multiplier for all other sizes. For example, a 48-fiber termination is

24   4 times the 12-fiber termination. Mr. Wood fails to realize that the material prices,

25   as reflected in BellSouth's inputs, represent a meld of vendors. Also, for some

-19-

1   sizes BellSouth uses only one vendor while for others it uses several vendors.

2   Additionally, BellSouth only purchases COT Fiber Terminations in the following

3   sizes; 12, 72, 144, and 216. The other sizes were developed based on regressions.

4   Thus, to pick one size to use as a multiplier and then to use that relationship

5   exclusively is inappropriate.

6

7 Q. **HAS ANY STATE COMMISSION RULED ON THE APPROPRIATE**

8   **INPUTS TO BE USED IN THE BSTLM?**

9

10 A. Yes. The Florida Commission was presented with many of the same input

11   changes now being adopted by Mr. Wood. In Docket No. 990649-TP, AT&T

12   witnesses modified soft copper limits, hard copper limits, line limits between the

13   soft and hard limits, and extended range cards in much the same manner as Mr.

14   Wood. The Florida Commission rejected all of the modifications finding that

15   BellSouth's current and prospective engineering principles and deployment

16   practices were appropriate. They concluded that "BellSouth's modeling approach

17   is reasonable." (Order No. PSC-01-1181-FOF-TP, Page 133)

18

19 **COPPER xDSL LOOPS**

20 Q. **IN YOUR DIRECT TESTIMONY, YOU DISCUSSED THE 5 DIFFERENT**

21   **SCENARIOS USED IN THE BSTLM, ONE BEING "COPPER ONLY". ON**

22   **PAGES 25-26, MR. WOOD CRITICIZES BELLSOUTH'S USE OF A**

23   **"COPPER ONLY" MODEL. PLEASE COMMENT.**

24

25

-20-

1 A. Exhibit DDC-11 illustrates the differences in the five scenarios – BST2000,

2 BST2000ISDN, Combo, ComboISDN and Copper-only included in BellSouth's

3 cost filing. Each of these scenarios fulfills the engineering rules applicable to the

4 specific loop.

5

6 The Copper Only scenario is used to develop material prices for those UNEs

7 served only on unloaded copper feeder and distribution facilities. The Copper

8 Only scenario is necessary in order to develop costs for non-loaded copper

9 facilities requested by the CLECs. None of the other scenarios can be used for

10 these loops because they limit loops served on copper to approximately 12,000

11 feet. CLECs, however, want access to available copper loops at any distance and

12 do not want to be limited to access to loops of specific length. Therefore, if any

13 other scenario is used to develop costs for any of the "copper only" loops, the costs

14 developed by the BSTLM would be based only on those loops less than 12,000

15 feet. Because BellSouth did not want to limit copper-only loops to 12,000 feet or

16 less, the new "Copper Only" scenario was created with a crossover from copper to

17 fiber set beyond the wire center boundaries resulting in all loops in this scenario

18 being served on copper feeder and distribution cable. As I discussed previously,

19 the definition of the product dictates the input and network design utilized in

20 BellSouth's cost study. BellSouth's use of a copper-only network should not be

21 construed as an embedded approach; instead it is an appropriate reflection of the

22 product BellSouth is offering.

23

24 Q. **MR. WOOD STATES THAT THERE IS NO REQUIREMENT THAT THE**

25 **COMBO AND BST2000 SCENARIOS HAVE TO "LIMIT LOOPS SERVED**

-21-

1   **ON COPPER TO LESS THAN 12,000 FEET." (PAGE 26, LINE 4) IS THIS**

2   **TRUE?**

3

4 A. No. For POTS service, the economical crossover point for changing from copper

5   loops to fiber-fed digital loop carrier systems is around 12,000 feet. In other

6   words, for loops greater than 12,000 feet from the central office, an efficient

7   network would provide the feeder portion over fiber cable and digital loop carrier

8   electronics. This is a standard generally recognized by loop models. BellSouth

9   witness Keith Milner explained in his direct testimony that:

10

11   In BellSouth's costing methodology for voice grade (or
     "narrowband") services, costs were developed for loops of
12   increasing length using both copper cable facilities and fiber fed
     digital loop carrier. Depending on the type of construction (that is,
13   aerial versus buried cable) and the volume of demand (cable size or
     NGDLC size), the economic crossover distance (that is, the point at
14   which loops provisioned using DLC is more economically efficient
     than using copper cable loops) for voice grade services is
15   approximately 12,000 feet from the central office.

16

17   Additionally, the CSA design directives recommend copper loop lengths from the

18   digital loop carrier ("DLC") remote terminal be limited to 9,000 feet for 26 gauge

19   cable or 12,000 feet for 24 gauge cable. BellSouth's BSTLM inputs reflect these

20   directives. The CopperLengthDesignLimit (soft) is set at 12,000 feet, the

21   DLCLengthDesignLimit (soft) is also set at 12,000 feet, and the

22   CSA24/26GaugeXover is set at 9,000 feet.

23

24

25

1   Q. MR. WOOD CLAIMS ON PAGE 27 THAT COPPER-ONLY UNES

2   SHOULD BE DEVELOPED FROM THE "COMBO" NETWORK

3   SCENARIO. IS HE CORRECT?

4

5   A. No, for two reasons. First, the Combo scenario is based on loops being provided

6   on fiber-based DLC systems directly integrated into the switch at the central office.

7   As I've already discussed, this is not a realistic assumption for unbundled loops

8   served on copper. Copper only unbundled loops do not terminate in BellSouth

9   switches and, therefore, cannot be terminated at a DS1 level directly into the

10   switch. In fact, copper-only loops cannot be served via DLC on fiber.

11

12   Second, the Combo scenario assumes all loops greater than 12,000 feet from the

13   wire center are served on fiber-fed DLC systems. Therefore, the Combo scenario

14   only develops costs for copper loops less than 12,000 feet. If one were to accept

15   Mr. Wood's argument, the average cost of all copper-only loops would be based

16   only on those loops less than 12,000 feet in length. (In Mr. Wood's case this would

17   be 15,999 feet.) Since the CLECs request copper-only loops of all lengths, Mr.

18   Wood's approach is unreasonable.

19

20   Q. WHY WOULD IT BE INAPPROPRIATE TO UTILIZE ONLY ONE

21   SCENARIO TO DEVELOP XDSL LOOP INVESTMENTS?

22

23   A. Using one scenario would, in fact, lead to an under-recovery of BellSouth's costs,

24   because all possible uses for a loop to a specific customer location are not

25   considered with a single scenario. For example, assume a customer is located

-23-

1   17,000 feet from the central office. If the Combo scenario was used exclusively,

2   this customer would never be considered for an unbundled copper loop since in the

3   Combo run all loops over 12,000 feet are served via DLC on fiber. Also, if this

4   loop was used to provide a stand-alone loop that connects to a CLEC switch, the

5   cost is understated. Before a voice grade circuit can go to a CLEC switch, this

6   loop must be removed from the DLC digital DS1, converted to voice grade, and

7   terminated on the main distribution frame ("MDF"). The costs for this conversion

8   and the MDF termination are not included in the Combo run. Multiple scenarios

9   are the only way to ensure that all costs of the various UNEs are identified.

10

11 **Q. ON PAGE 26, MR. WOOD CONTENDS THAT THE USE OF MULTIPLE**

12   **SCENARIOS VIOLATES FCC RULE §51.511(A). IS HE CORRECT?**

13

14 A. No. In each of the scenarios BellSouth built, the "total quantity of facilities" was

15   considered; i.e., each scenario had the same overall line count. Thus, this

16   modeling technique fulfilled the FCC's directive that "a reasonable projection of

17   the sum of the total number of units" be considered. Additionally, this

18   methodology is appropriate since BellSouth cannot anticipate the ultimate use for

19   any particular loop. A loop delivering voice grade service today potentially can be

20   utilized to provide digital service tomorrow. Therefore, Mr. Wood's allegation is

21   without merit.

22

23   Additionally, BellSouth does not possess the CLEC's marketing plans. Thus,

24   BellSouth cannot anticipate where CLEC customers will be located and what type

25   of loop they will purchase. Mr. Wood's requirement adds no accuracy to the

-24-

1   model's results since BellSouth cannot project where the particular loop will be

2   located. Any attempt to assign a loop type to a specific customer location would

3   be an exercise based on unsupportable assumptions. Thus, by assuming all

4   customer locations are potential candidates for a particular unbundled loop,

5   BellSouth has eliminated the arbitrary assignment process.

6

7 **Q. ARE THERE RECENT RULINGS THAT SUPPORT BELLSOUTH'S USE**

8   **OF MULTIPLE SCENARIOS?**

9

10 A. Yes. As I mentioned previously, the Florida Commission released its Order in

11   Florida Docket No. 990649-TP on May 25, 2001. On pages 132-133 of that

12   document, the Florida Commission discusses the use of multiple scenarios, finding

13   that "BellSouth's use of three distinct scenarios is reasonable for the purpose of

14   this proceeding." (Order, page 133) The BST2000-ISDN and Combo-ISDN were

15   introduced after the Florida proceeding. As I explained in my direct testimony, in

16   the BST2000-ISDN scenario all loops considered in BST2000 are converted to

17   ISDN loops and ISDN customers are added. The Combo-ISDN run was used to

18   develop the costs of an ISDN loop when it is offered in combination; thus, it is

19   identical to the BST2000-ISDN scenario except that switched services remain

20   switched. The introduction of two additional scenarios does not, however,

21   invalidate the Florida Commission's finding, nor does it add credence to Mr.

22   Wood's argument.

23

24 **Q. BELLSOUTH'S COST STUDY INCLUDES SEPARATE COSTS FOR A**

25   **SHORT (<18KFT) UNBUNDLED COPPER LOOP ("UCL") AND FOR A**

1   LONG (>18KFT) UNBUNDLED COPPER LOOP. FROM A COST

2   METHODOLOGY PERSPECTIVE, IS THIS RATE STRUCTURE

3   APPROPRIATE?

4

5 A. Yes. As I have explained earlier in my testimony, a special run, the Copper Only

6   Scenario, was made in the BSTLM based on the assumption that all potential

7   xDSL customer locations are served via copper. The BSTLM then generates two

8   investment reports, one that reflects loops less than 18kft (UCL-Short) and one that

9   reflects loops greater than 18kft in length (UCL-Long).

10

11   Everyone recognizes that loop length is a major cost driver. This is especially true

12   for loops that are 100% copper, where digital loop carrier costs and fiber cable

13   costs are not considered in the calculations. In fact, the cost of copper loops

14   increases almost linearly with length.

15

16   Because there is a distinct difference between the long and the short versions of the

17   UCL, costs should be developed that reflect this fact. BellSouth witness Mr. Jerry

18   Latham also addresses why segmenting Unbundled Copper Loops by length is

19   appropriate.

20

21 Q. MR. STARKEY PROPOSES UTILIZING A RATE STRUCTURE

22   DEVELOPED BY LOUISIANA COMMISSION CONSULTANT, MS.

23   DISMUKES. FROM A COST PERSPECTIVE, DO YOU AGREE WITH

24   MR. STARKEY'S PROPOSAL? (STARKEY TESTIMONY, PAGE 8)

25

-26-

1   A.   No. First let me clarify that Ms. Dismukes did not propose 6,000-feet increments,

2   as Mr. Starkey contends. Instead, Ms. Dismukes modified the Long Copper Loop

3   rate structures to reflect a cost per 3,000-feet increment, rather than BellSouth's

4   flat rate, non-distance sensitive structure. From a cost methodology perspective, I

5   have some reservations with this proposal. There are certain portions of copper

6   loops that do not vary with distance; e.g., the NID, drop, intrabuilding cable,

7   building entrance cable, test points, land and building costs in the central office,

8   and MDF termination. Utilizing Mr. Starkey's/Ms. Dismukes' approach, those

9   non-distance sensitive items would be converted to a cost per 3,000-foot

10   increment when, in fact, those costs are fixed regardless of loop length. Thus, this

11   methodology understates the costs of the non-distance sensitive portions of these

12   loops on all loops less than the average loop length. BellSouth witness Mr.

13   Latham also responds to this issue in his testimony.

14

15   **Q. MR. STARKEY QUESTIONS WHY BELLSOUTH DID NOT STRUCTURE**

16   **THE UCL-ND (UNBUNDLED COPPER LOOP – NONDESIGNED) INTO**

17   **SHORT AND LONG. (STARKEY TESTIMONY, PAGE 8) PLEASE**

18   **COMMENT.**

19

20   A.   BellSouth witness Mr. Latham discusses why BellSouth is unable to segment non-

21   designed loops, e.g., UCL-ND, between short and long in his testimony. Also, as I

22   explained in my supplemental direct testimony filed April 25, 2001, the UCL-ND

23   loop will not have a specific length limitation. Since this loop's resistance is

24   restricted to 1300 ohms, however, the UCL-ND loop generally will be 18,000 feet

25   or less. However, in some cases, the length may be longer based on gauge. Thus,

1   it made little sense to replicate the "short/long" rate structure for this element.

2

3   Although BellSouth has not placed a length limitation on the UCL-ND, for costing

4   purposes, the length was limited to 24,000 feet. This length limitation meets the

5   1300 ohms requirement. In South Carolina, the cost study produced an average

6   length of 12,534 feet for the UCL-ND. Thus, no distinction between "short" and

7   "long" need be made. CLECs can order a 25,000 foot UCL-ND, but it will be

8   priced as though it were only 12,534 feet in length.

9

10 **Q. ON PAGE 11, LINES 18-21, MR. STARKEY STATES THAT**

11   **"BELLSOUTH WANTS TO CHARGE HIGHER MONTHLY RECURRING**

12   **LOOP CHARGES ASSOCIATED WITH A FORWARD-LOOKING**

13   **NETWORK, YET RECOVER COSTS ASSOCIATED WITH MODIFYING**

14   **ITS LESS COSTLY EMBEDDED NETWORK." IS HIS ALLEGATION**

15   **VALID?**

16

17 A. No. Mr. Starkey is mistaken. Let me offer a clear example that proves that

18   BellSouth's embedded network costs are more than the forward-looking network.

19   In Docket No. 97-374-C, the previous generic cost docket, BellSouth filed a

20   residual recovery requirement ("RRR") – also referenced in Mr. Wood's testimony

21   – in an attempt to recover the cost associated with actually providing unbundled

22   elements. The RRR identified the cost difference between the actual network and

23   the forward-looking network. No one ever questioned the number itself, only the

24   appropriateness of inclusion of that number in setting rates. Thus, no one

25   questioned that the actual network is more costly than the forward-looking

1   network. Therefore, Mr. Starkey's claim is baseless and should be ignored.

2   Additionally, his example on page 12 clearly is based upon a short-run perspective,

3   a fact acknowledged by Mr. Starkey on line 19; "it is actually cheaper, in the short

4   run, for BellSouth to use a loop facility." Obviously, this violates the FCC's and

5   this Commission's directive that costs must reflect a long-run time frame such that

6   all costs are variable.

7

8   **NONRECURRING COST DEVELOPMENT**

9   **Q. MR. FASSETT STATES THAT AN ORDER SUBMITTED**

10   **ELECTRONICALLY "SHOULD FLOW THROUGH TO PROVISIONING**

11   **WITHOUT MANUAL INTERVENTION." (FASSETT TESTIMONY,**

12   **PAGE 8, LINES21-22) PLEASE COMMENT.**

13

14   A. Mr. Fassett's contention mirrors one advanced by parties in the previous generic

15   cost docket in South Carolina. On page 38 of Order No. 98-214, this Commission

16   states:

17

18   The key assumptions underlying the AT&T and MCI
     Nonrecurring Cost Model is that unbundled network elements
19   (including orders for new and additional lines) will automatically
     flow through the ordering and provisioning process using
20   currently available OSS, processes and procedures with little or no
     manual intervention.
21

22   The Commission did not adopt the AT&T/MCI Nonrecurring Cost Model based, in

23   part, on the above statement. This Commission found that the underlying

24   architecture that would allow "little or no manual intervention" had not been "fully

25   developed or deployed anywhere." (Order No. 98-214, Page 38)   Mr. Fassett offers

-29-

1   no evidence to support a change to that finding.

2

3   **UNBUNDLED LOOP MODIFICATION**

4   **Q. IS LOOP CONDITIONING AN INVESTMENT, AS MR. STARKEY**

5   **CLAIMS ON PAGE 20?**

6

7   A. No. The labor associated with the installation of the loop (i.e., the construction of

8   the loop) is capitalized (i.e., is treated as an investment) based on accounting rules.

9   Part 32 of the FCC's Code of Federal Regulations states: "In accounting for

10   construction costs, the utility shall charge to the telephone plant accounts, all direct

11   and indirect costs." Included in the direct and indirect costs are the "wages and

12   expenses of employees directly engaged in or in direct charge of construction

13   work." Thus, BellSouth has appropriately included these labor-related costs

14   (construction costs) in the calculation of the investment (i.e., as part of the

15   capitalized plant account). The costs associated with the investment are expressed

16   on a recurring (monthly) basis and are comprised of capital costs and operating

17   expenses.

18

19   Costs associated with conditioning a loop for a CLEC, on the other hand, include

20   activities associated with provisioning the service after the loop has been installed.

21   In other words, these are costs BellSouth incurs as a result of a service request.

22

23   **Q. ON PAGE 14, MR. STARKEY STATES THAT COSTS ASSOCIATED**

24   **WITH LOOP CONDITIONING ARE ALREADY RECOVERED IN**

25   **THE RECURRING MAINTENANCE FACTOR. IS THIS TRUE?**

-30-

1

2 A. No. Mr. Starkey's allegation that loop conditioning costs resulting from CLEC

3   requests are included in BellSouth's plant maintenance costs is inaccurate. The

4   magnitude of the costs necessary to support Mr. Starkey's assertion is not reflected

5   in BellSouth's cost development. Exhibit DDC-12 displays the annual amount of

6   maintenance costs associated with the 2-wire Copper Loop – Short ($17.56). It

7   costs BellSouth, however, over $600 every time a CLEC requests that a loop be

8   conditioned. Obviously, the $17.56 annual maintenance cost cannot reflect an

9   intense loop-conditioning directive by BellSouth. In fact, as Exhibit DDC-12

10   illustrates, it would take over 37 years to recover the costs associated with loop

11   conditioning if one assumes the entire $17.56 is devoted to loop conditioning

12   (which it is not). Also, contrary to what Mr. Starkey states in his testimony,

13   BellSouth is not aggressively removing load coils as part of any rehabilitation

14   initiative. In other proceedings, CLEC witnesses have discussed SBC's "Project

15   Pronto" as illustrative of such a modernization initiative. The costs of such a

16   project ($6 billion) have not been considered in BellSouth's cost study. File

17   PLSP99Ex.xls includes BellSouth's average annual maintenance expense for the

18   entire nine-state region, approximately $900M for the cable & wire accounts. This

19   annual amount includes all routine maintenance required to ensure the transmission

20   quality of BellSouth's outside plant plus whatever minor amount has been

21   estimated for load coil removal. Obviously, if BellSouth were to implement a

22   project such as "Project Pronto", this annual amount would increase substantially.

23   Additionally, it should be noted that in the calculation of BellSouth's Plant

24   Specific factor, expenses generated due to service orders have been removed.

25   Thus, to the extent that BellSouth's Network Department estimated the future

-31-

1   impact of the CLECs' requests for unbundled loop modification, they have been

2   removed from the factor.

3

4   Mr. Starkey makes another error on page 14 in representing what BellSouth

5   has done in its cost study, where he states that the maintenance (plant specific)

6   factor is based on maintenance expenses "over the past three years."

7   BellSouth's plant specific factor is in fact based on a projection of future

8   anticipated expenses, not past expenditures.

9

10   The load coils that are currently on loops were prudently placed for a purpose

11   at some point in time. The CLEC's service request for loop conditioning

12   specifically causes BellSouth to incur the cost to remove load coils or bridged

13   tap. Thus, as the FCC has recognized, BellSouth is justified in charging the

14   CLEC for the activity.

15

16 Q. WITNESSES HAVE ALSO ARGUED THAT A NETWORK BASED ON A

17   FORWARD-LOOKING DESIGN WOULD NOT HAVE LOAD COILS AND

18   BRIDGED TAP AND BELLSOUTH SHOULD, THEREFORE, NOT BE

19   ENTITLED TO RECOVER ANY COSTS ASSOCIATED WITH

20   CONDITIONING. PLEASE RESPOND.

21

22 A. As I have stated previously, I agree with the postulate that a forward-looking

23   network being designed today would not include load coils. In fact, load coils are

24   not included in BellSouth's forward-looking loop recurring cost studies. The fact

25   remains, however, that CLECs are requesting unloaded copper loops from

-32-

1   BellSouth's existing network, which contains both load coils and bridged tap. The

2   removal of these elements is a very real cost that BellSouth incurs each and every

3   time that a CLEC requests that BellSouth condition a loop. As long as BellSouth

4   is required to remove load coils and bridged tap at the CLEC's request, BellSouth

5   must be allowed to recover those costs. This is completely consistent with the

6   FCC's view that, "under our rules, the incumbent should be able to charge for

7   conditioning such loops." (FCC UNE Remand Order, ¶193)

8

9 Q. **MR. STARKEY CLAIMS THAT BECAUSE THE COST STUDY**

10   **"ASSUMED THAT 35% TO 50% OF ITS ENTIRE NETWORK WILL BE**

11   **VACANT" THAT BELLSOUTH SHOULD BE ABLE TO UNLOAD**

12   **MULTIPLE PAIRS AT A TIME. (PAGE 24) IS HE CORRECT?**

13

14 A. No. Mr. Greer will address the number of pairs that should be unloaded at one

15   time, but let me address the utilization factors used in the cost study. I do not

16   know where Mr. Starkey obtained his numbers. In my direct testimony, I provided

17   the effective fill generated by the BSTLM – the average effective fill for

18   distribution cable in BellSouth's study for South Carolina is 41%, for copper

19   feeder cable it is 74%. Further, these numbers reflect a statewide average

20   utilization. If you move into a cross section where a load coil needs to be

21   removed, however, that section potentially may be working at 90%. Also, it's a

22   cross section, which means there are probably multiple cables. Therefore, you may

23   not find 25 non-working pairs together, let alone the 50 Mr. Starkey is advocating.

24   Thus, Mr. Starkey's conclusion that because there is spare capacity in a cable run

25   that unloading can easily be accomplished in multiples is invalid.

-33-

1

2 Q. **MR. STARKEY CLAIMS TO "HAVE DEVISED A METHOD BY WHICH**

3 **BELLSOUTH SHOULD BE ALLOWED TO RECOVER THE ENTIRETY**

4 **OF ITS LOOP CONDITIONING EXPENSES." (STARKEY TESTIMONY,**

5 **PAGE 33, LINES 21-22) PLEASE COMMENT.**

6

7 A. Mr. Starkey's method basically involves taking the sum of the loop conditioning

8 expense for four years, converting that expense into an "investment" by applying

9 the annual cost factor associated with underground cable, dividing by the demand

10 for digital-capable loops for four years, and then dividing by 12. I have several

11 problems with Mr. Starkey's proposal. First, his method does not eliminate the

12 controversy surrounding the cost of loop conditioning. I note he is still advocating

13 that 50 loops be conditioned at one time. BellSouth witness Mr. Greer explains

14 why this is unreasonable. Second, I have previously explained that loop

15 conditioning is not an investment, thus, the application of an annual cost factor is

16 not appropriate. I find it interesting that Mr. Starkey, after criticizing BellSouth's

17 90% underground assumption, chose to use an underground annual cost factor.

18 Also, Mr. Starkey never explains which components of the annual cost factors he

19 feels are applicable. Third, Mr. Starkey never defines exactly what he means by

20 "digital-capable" loops. Is he including ISDN, T-1, DS1, DS3 loops?

21

22 If, and only if, this Commission were to adopt an approach that converts a

23 nonrecurring expense to a recurring rate, it would be more accurate to convert the

24 expense to an annuity based on BellSouth's proposed cost of capital and the

25 location life associated with xDSL loops. Additionally, the demand should be

-34-

1   limited to xDSL loops.

2

3   **VERTICAL FEATURES**

4   **Q. MR. WOOD CONTENDS THAT CLECs SHOULD NOT PAY ANY**

5   **ADDITIONAL CHARGE FOR VERTICAL FEATURES ABOVE A PORT**

6   **CHARGE. SHOULD THIS COMMISSION BE SWAYED BY HIS**

7   **ARGUMENT?**

8

9   A. No. First, Mr. Wood offers no new evidence in support of this position. This

10   Commission ruled on the costs/rates for vertical features previously and in doing

11   so rejected this position. In Docket No. 97-374-C, this Commission established a

12   rate for vertical features thus, recognizing that BellSouth does incur a cost to

13   provide features to CLECs. Mr. Wood presents nothing that should make this

14   Commission rescind its earlier ruling.

15

16   On page 68, Mr. Wood questions whether or not vertical features contribute to the

17   exhaust of the switch processor. The switch vendors have stated that features do

18   affect the useful capacity of a switch, and therefore determine, in part, the number

19   and type of switches that must be placed. For example, Lucent Practice 235-900-

20   133, Issue 3.00B, shows that the 5ESS switch has capacity constraints in terms of

21   the number of calls the switch can process in the busy hour depending on the type

22   and number of features.

23

24   It is also interesting to note that the Hatfield Model (which evolved into the HAI

25   model), of which AT&T and MCI were sponsors, contains capacity constraints for

-35-

1   call processing, ports, and minutes of use. The HAI model, Release 5.1, also

2   includes a "Feature Loading Multiplier" which reflects "the amount by which the

3   load on a processor exceeds the load associated with ordinary telephone calls, due

4   to the presence of vertical features, Centrex, etc."[1] Thus, the HAI Model also

5   recognizes that call processing and features can and do cause additional switch

6   costs:

7

8   If the model determines that the load on a processor,
calculated as the number of busy hour call attempts times the
9   processor feature load multiplier, exceeds the switch real
time limit multiplied by the switch maximum processor
10   occupancy, it will add a switch to the wire center[2].

11

12   Based upon the plentiful evidence that switches are call-processing limited, and

13   features present an incremental operating load (and cost) to the switch processors,

14   the testimony of Mr. Wood to the contrary is uninformed and should be

15   disregarded.

16

17   Additionally, Mr. Wood's statement that the "hardware involved is the switch

18   processor" is wrong. (Wood Testimony, Page 67, Line 19) The "hardware" is

19   composed of specialized hardware that is required to make some features function;

20   equipment that is not considered in a POTS office; for example, three-port

21   conference circuits that enable three-way calling.

22

23

[1] HAI Model Release 5.1 Inputs Portfolio, page 88. Filed by AT&T in
24 Georgia Docket No. 10692-U, *Generic Proceeding to Establish Long-Term Pricing for Policies for Unbundled Network Elements*, June 11, 1999.
AT&T filed this HAI methodology in support of its supposed rates for
25 UNE combinations in that docket.
[2] HAI Model Release 5.1 Inputs Portfolio, page 84.

1

2 Q. ON PAGE 69, MR. WOOD CLAIMS THAT "BELLSOUTH HAS NOW

3   BEGUN CAPITALIZING THE COST OF THE GENERIC SOFTWARE."

4   IS THIS TRUE?

5

6 A. No. BellSouth previously capitalized the initial operating systems software. What

7   is different now is that application software that previously was classified as

8   expense, e.g., the software for feature packages, is now classified as a capital item.

9   Let me emphasize that BellSouth did not arbitrarily make the decision to reclassify

10   software expenditures; this was a directive in accordance with Generally Accepted

11   Accounting Principles. Additionally, Mr. Wood's claim that BellSouth is "double-

12   recovering" software costs is wrong. (Wood Testimony, Page 69, Line 13)

13   BellSouth developed a factor that reflects the relationship between software

14   investments (Field Reporting Code ("FRC") 560C) and digital switching

15   investments (FRC 377C). Application of this factor allocates a portion of software

16   costs to every element that is comprised of digital switching equipment. Thus,

17   local usage, ports, and vertical features bear some of these costs, but there is no

18   double-recovery.

19

20 FACTORS

21 IN-PLANT FACTORS

22 Q. MR. WOOD RAISES CONCERNS WITH BELLSOUTH'S RELIANCE ON

23   IN-PLANT FACTORS TO DETERMINE ENGINEERING AND

24   INSTALLATION COSTS. PLEASE RESPOND.

25

-37-

1 A. As Mr. Wood states, BellSouth utilizes in-plant loading factors to add engineering

2 and installation labor and miscellaneous equipment to the material price and/or

3 vendor installed price. That is, the in-plant loading converts the material price to an

4 installed investment.

5

6 On page 41 of his testimony, Mr. Wood claims, through an example, that

7 BellSouth's outside plant in-plant factors overstate the costs of larger sized cables.

8 Although the relationship of the combined costs of installation labor, exempt

9 material, sales tax and engineering to total material costs may not be perfectly

10 linear, the use of in-plant factors, nevertheless, produces representative cost results

11 when viewed on a total cable placement basis. While the use of in-plant factors

12 may potentially overstate, to some degree, the costs for large size cables, Mr.

13 Wood disregards the fact that the corollary is also true (i.e., that the in-plants

14 potentially understate, to some degree, the costs for small size cables.) Remember

15 that these factors more-or-less reflect the average costs associated with installing a

16 cable.

17

18 Exhibit DDC-13 depicts: 1) the cable route feet placed by cable size produced by

19 the BSTLM; and 2) the actual cable route feet placed by cable size during 1998, as

20 derived from the Vintage Retirement Unit Cost ("VRUC") extract. For copper

21 cable placement, the following points are relevant:

22

23 1) The 1998 VRUC data, upon which BellSouth's in-plants are based, reflects

24 somewhat of a bell-shaped curve with most copper placement related to 25 pair

25 (12%), 50 pair (29%), 100 pair (23%), 200 pair (17%), and 300 pair (6%).

-38-

1   Only 13% of BellSouth's 1998 placements relate to cable sizes of 400 pair and

2   larger. The in-plant factors are theoretically based on the composite total

3   installed and material costs for the universe of cables placed in 1998.

4

5   2) The network placed by the BSTLM assumes a much greater incidence of small

6   cable placement; i.e., 25 pair (53%), 50 pair (15%), 100 pair (12%), 200 pair

7   (9%), 300 pair (4%) with only about 7% of the placements related to cable

8   sizes of 400 pair and larger.

9

10   Thus, if the theory advanced by Mr. Wood was true, BellSouth has understated the

11   cost of its copper loop network since the BSTLM has projected a greater percent of

12   small cable placements than what was used to develop the factors.

13

14 Q. **MR. WOOD RECOMMENDS THAT THIS COMMISSION "ADOPT THE**

15   **MORE ACCURATELY 'LOADED' MATERIAL INVESTMENTS**

16   **ADOPTED BY THE FLORIDA COMMISSION" AS A RESULT OF**

17   **FLORIDA'S UNIVERSAL SERVICE PROCEEDING. (WOOD**

18   **TESTIMONY, PAGE 47, LINES 19-20) PLEASE COMMENT.**

19

20 A. Contrary to Mr. Wood's claim on page 46, an important distinction between the

21   current proceeding and the Universal Service Fund ("USF") proceeding exists.

22   Universal Service Funding is designed to set a subsidy level for all providers,

23   while the UNE proceeding is designed to set permanent rates for BellSouth. In its

24   discussion of the use of forward-looking economic costs with respect to USF, the

25   FCC stated that, "long run, forward-looking economic cost best approximates the

1   costs that would be incurred by an efficient carrier in the market." (Paragraph 224,

2   Report and Order Docket No. 96-45) With that objective in mind, the Florida

3   Public Service Commission ("FPSC") issued its USF Order relying heavily on

4   input from Sprint, considered by the FPSC to be representative of an "efficient

5   provider." On the other hand, the rates set here by the Public Service Commission

6   of South Carolina should be set at a level that compensates BellSouth (not Sprint)

7   for the use of BellSouth's (not Sprint's) network.

8

9   In fact, the FCC's Third Report and Order alluded to this subtle, but important

10   difference; the "benchmark of forward-looking cost and existing network design

11   most closely represents the incremental costs incumbents actually expect to incur

12   in making network elements available to new entrants." (Paragraph 685, FCC

13   Third Report and Order, emphasis added) The Eight Circuit Court's recent ruling,

14   even though it is pending, only underscores the need to use inputs that reflect the

15   cost to BellSouth of the use of BellSouth's network and not some hypothetical

16   efficient provider.

17

18   Additionally Mr. Wood's proposal does more than merely reset BellSouth's in-

19   plant factor to 1.0, as he states. In its order in Docket No. 980696-TP (Universal

20   Service Fund Docket), the Florida Public Service Commission accepted Sprint's

21   loaded material price. Thus, the Florida Commission accepted not only whatever

22   loadings Sprint included, but also Sprint's underlying material prices. This is

23   inappropriate. The material prices used in BellSouth's cost study accurately reflect

24   the prices BellSouth, not Sprint, incurs in providing unbundled network elements

25   on a going-forward basis in South Carolina. Further, Mr. Wood's use of the

-40-

1   material prices from Florida's USF docket fails to include the investment

2   associated with placing buried cable since these investments are located in a

3   separate table in the Benchmark Cost Proxy Model ("BCPM") --- not in the

4   material tables of that model. (The BCPM was the model adopted by the Florida

5   Public Service Commission in Docket No. 980696-TP.) These placing costs

6   represent a substantial portion of buried cable costs. Costs associated with

7   trenching, cutting and restoring asphalt when crossing roads, cutting and restoring

8   concrete, cutting and restoring sod, boring under driveways, etc., have been

9   excluded from Mr. Wood's calculations.   To omit these costs significantly

10   understates BellSouth's loop costs.

11

12   I have previously discussed the validity of BellSouth's in-plant factors and their

13   application. Additionally, the supporting calculation from which they were

14   derived is provided with BellSouth's filing. In Florida, Sprint did not provide the

15   actual factors used, thus they cannot be analyzed for appropriateness. (Page 141 of

16   Order No. PSC-99-0068-FOF-TP) Let me also note that the Florida Commission

17   found that the precise composition of Sprint's loading was "unclear" (Page 161 of

18   Order No. PSC-99-0068-FOF-TP). For these reasons Mr. Wood's suggestion

19   should be rejected. In fact, even the Florida Commission rejected this same

20   proposal for the state of Florida in Docket No. 990649-TP. In its Order, the

21   Florida Commission states: " the inputs ordered in our Universal Service

22   proceeding are for a different purpose and are not appropriate here." Further, the

23   Florida Commission states: "we find that the appropriate assumptions and inputs

24   for the associated cable placement costs are those identified by BellSouth." (Order

25   No. PSC-01-1181-FOF-TP, Page 190) The Florida Commission has asked for a

-41-

1   "bottoms-up" approach to the development in order to evaluate the differences in

2   the two approaches, but currently the inputs and methodology used by BellSouth

3   are approved.

4

5 **Q. DID BELLSOUTH "ELECT TO WITHHOLD [THIS] IMPORTANT**

6   **INFORMATION IN THIS PROCEEDING" BY USING IN-PLANT**

7   **FACTORS IN PLACE OF DOING A BOTTOMS-UP ANALYSIS? (WOOD**

8   **TESTIMONY, PAGE 45, LINES 4-5)**

9

10 A. No. The question is really one of "perceived accuracy". BellSouth believes that

11   in-plant factors are an appropriate means of determining installed prices. Mr.

12   Wood, on the other hand, advocates the use of a bottoms-up development of costs.

13   This is not a desire by BellSouth to "withhold" information from this Commission;

14   instead it is a debate over the best method to determine costs.

15

16   In a "bottoms-up" approach, costs are added to the cable's material prices based on

17   very specific activities that occur during cable placement and the probabilities of

18   those activities occurring. Mr. Wood's method, thus, requires that BellSouth

19   expend time gathering data that is not readily available in order to populate the

20   model. Besides being a time-consuming endeavor, the level of precision

21   anticipated by the use of a bottoms-up approach is not realized. Many of the

22   inputs, by necessity, would be based on subject matter expert opinion since actual

23   data is not available at granular level required by the BSTLM. For example,

24   BellSouth is able to ascertain the per-foot cost of placing cable from existing

25   contracts, but is unable to determine how often a particular activity occurs based

-42-

1   on actual data. Specifically, BellSouth can determine that it costs $X to bury one

2   foot of cable based on actual data. BellSouth does not, however, have actual data

3   to forecast how often sod must be cut and restored or how often cable must be

4   bored under driveways or how these probabilities would differ between an urban

5   and rural location. These inputs would need to be obtained from subject matter

6   experts. Another item that is difficult to quantify is the specific cost of the exempt

7   material associated with each provisioning activity. Exempt material identifies the

8   cost of items that do not carry a unique identifier in BellSouth's accounting records

9   but are necessary to provision the element. For these reasons, the level of

10   "accuracy" anticipated from the use of a bottoms-up approach versus the use of in-

11   plant factors is not attainable.

12

13   **FLORIDA ORDER IN DOCKET NO. 990649-TP**

14   **Q. MR. MCDANIEL REQUESTS THAT THIS "COMMISSION TAKE**

15   **JUDICIAL NOTICE OF THE FLORIDA PUBLIC SERVICE**

16   **COMMISSION ORDER NO. PSC-01-1181-FOF-TP." (MCDANIEL**

17   **SUPPLEMENTAL TESTIMONY, PAGE 2, LINES 5-6) PLEASE**

18   **COMMENT.**

19

20   A. BellSouth believes that this is a prudent request by Mr. McDaniel. BellSouth,

21   however, respectfully requests that this Commission also take notice of

22   BellSouth's request for Reconsideration filed on June 11, 2001 in Florida Docket

23   No. 990649-TP.

24

25   **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

1

2   A. Yes.

3

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-44-

BST2000 Scenario
(Non-switched Loops)

BellSouth Central Office Building

Collocation Space

M D F

DLC

C O T

Copper

(If distance is <12Kft)

N I D

DLC

Remote Terminal

N I D

Fiber Feeder

Copper Distribution
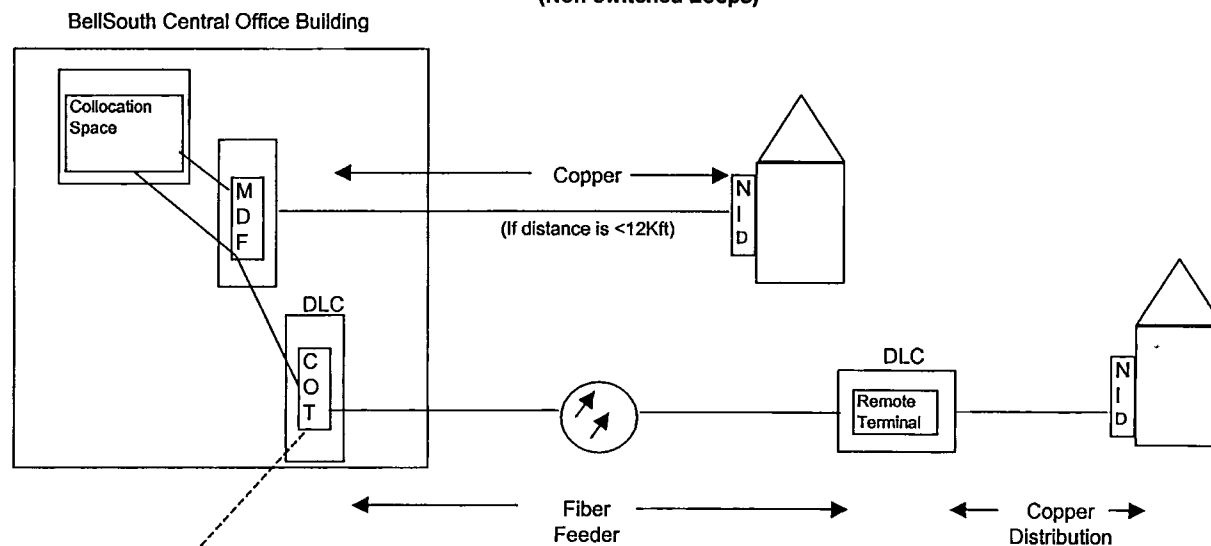
COT includes Channel Bank with Voice Grade Plug-in.

Notes:
BST2000ISDN is the same as the BST2000 scenario except that an ISDN plug-in is
used at the RT and at the COT. Also, additional time slots are required for the RT and
COT commons and in the fiber.

Copper-Only Scenario would be equivalent to the copper loop shown here, only with unlimited length.

Key:
COT   Central Office Terminal
DLC   Digital Loop Carrier
MDF   Main Distribution Frame
NID   Network Interface Device

Combo Scenario
(Switched Loops)

BellSouth Central Office Building
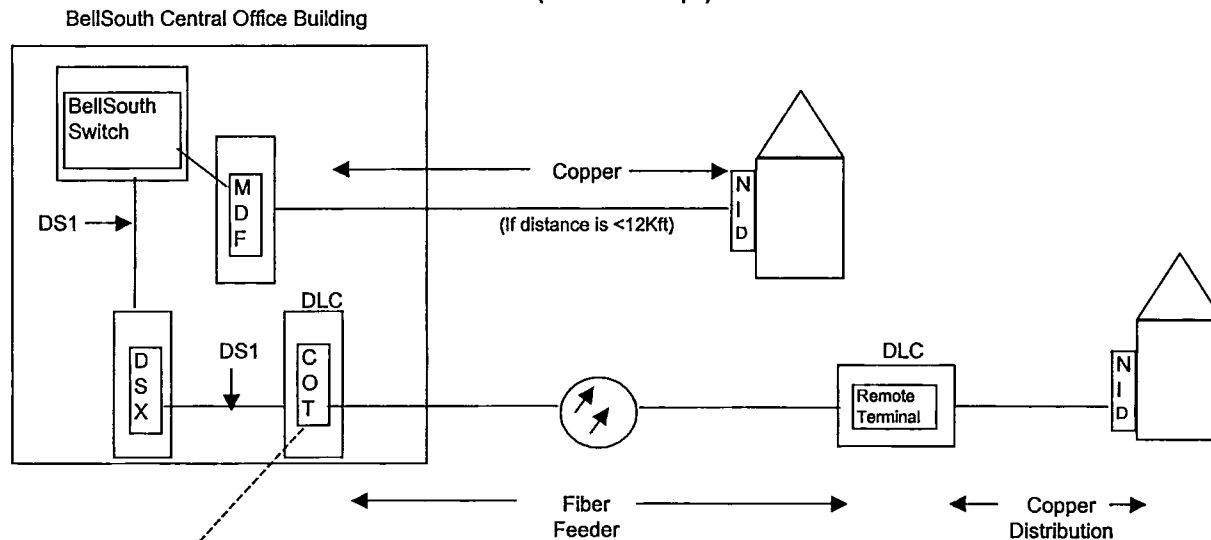
COT excludes Channel Bank with Voice Grade Plug-in.

Notes:
ComboISDN is the same as the Combo scenario except that an ISDN plug-in is
used at the RT. Also, additional time slots are required for the RT and
COT commons and in the fiber.

Copper-Only Scenario would be equivalent to the copper loop shown here, only with unlimited length.

Key:
COT   Central Office Terminal
DLC   Digital Loop Carrier
DSX   Digital Signal Cross-connect
MDF   Main Distribution Frame
NID   Network Interface Device

South Carolina
A.13.1 2-Wire Copper Loop - short

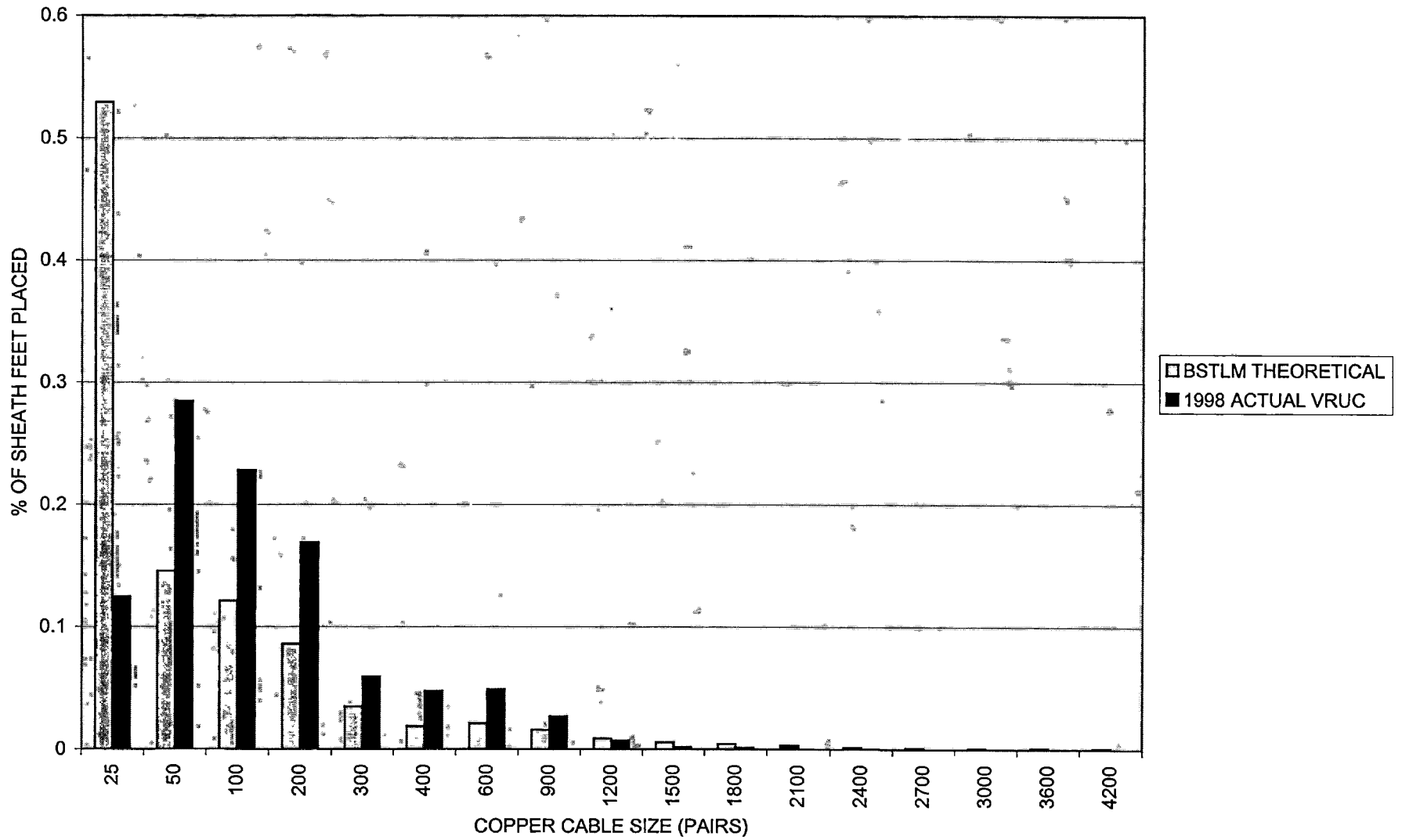| Description	FRC	A Investment	B=AxFactor Depreciation & Factor	C=AxFactor Cost of Money & Factor	D=AxFactor Income Tax & Factor	E=AxFactor Plant Specific Expense & Factor	F=AxFactor Ad Valorem Expense & Factor	I=(B+C+D +E+F) Direct Cost
Buildings - COE	10C	$13.7851	$0.2890 0.0210	$1.2312 0.0893	$0.5840 0.0424	$0.9469 0.0687	$0.1625 0.0132	$3.2336
Aerial Ca - Metal - Building Entrance	12C	$0.0665	$0.0052 0.0775	$0.0044 0.0669	$0.0021 0.0317	$0.0018 0.0275	$0.0009 0.0132	$0.0144
Poles	1C	$50.3454	$2.2079 0.0439	$3.6395 0.0723	$1.7264 0.0343	$0.7209 0.0143	$0.6665 0.0132	$8.9611
Land - COE	20C	$0.6912	$0.0000 . 0.0000	$0.0777 0.1125	$0.0369 0.0534	$0.0000 0.0000	$0.0092 0.0132	$0.1238
Aerial Ca - Metal	22C	$155.8024	$12.0722 0.0775	$10.4169 0.0669	$4.9414 0.0317	$4.2852 0.0275	$2.0626 0.0132	$33.7783
Aerial Ca - Metal - Drop	22C	$13.9712	$1.0826 0.0775	$0.9341 0.0669	$0.4431 0.0317	$0.3843 0.0275	$0.1850 0.0132	$3.0290
Digtl Circ - Other	357C	$90.4863	$10.1601 0.1123	$4.4411 0.0491	$2.1067 0.0233	$2.0636 0.0228	$1.1979 0.0132	$19.9694
Digital Elec Switch	377C	$10.8109	$1.0660 0.0986	$0.5551 0.0513	$0.2633 0.0244	$0.3604 0.0333	$0.1431 0.0132	$2.3880
Buried Ca - Metal	45C	$257.5315	$18.5130 0.0719	$17.3813 0.0675	$8.2451 0.0320	$6.5585 0.0255	$3.4093 0.0132	$54.1071
Buried Ca - Metal - Drop	45C	$35.6410	$2.5621 0.0719	$2.4055 0.0675	$1.1411 0.0320	$0.9077 0.0255	$0.4718 0.0132	$7.4881
Conduit Systems	4C	$66.6828	$0.7882 0.0118	$5.4889 0.0823	$2.6037 0.0390	$0.1278 0.0019	$0.8828 0.0132	$9.8913
Intrbld Network - Metal	52C	$6.8471	$0.3962 0.0579	$0.4557 0.0665	$0.2161 0.0316	$0.0140 0.0020	$0.0906 0.0132	$1.1726
Underground Ca - Metal	5C	$76.1893	$5.9866 0.0786	$5.0896 0.0668	$2.4143 0.0317	$1.1893 0.0156	$1.0086 0.0132	$15.6883
		$778.8507				$17.56		$159.8450

Monthly Cost(Total / 12): $13.3204

Loop Modification - LC removal Short $64.91
Total Loop Modification Cost $649.10
Years to Recover | 37 |

COPPER CABLE PLACEMENT BY CABLE SIZE - SOUTH CAROLINA

STATE OF SOUTH CAROLINA   )
) CERTIFICATE OF SERVICE

COUNTY OF RICHLAND   )

The undersigned, Susan Davis Gibson, hereby certifies that she is employed by the Legal Department for BellSouth Telecommunications, Inc. ("BellSouth") and that she has caused the Rebuttal Testimony of D. Daonne Caldwell to be served by placing such in the care and custody of the United States Postal Service, with first-class postage affixed thereto and addressed to the following this June 11, 2001:

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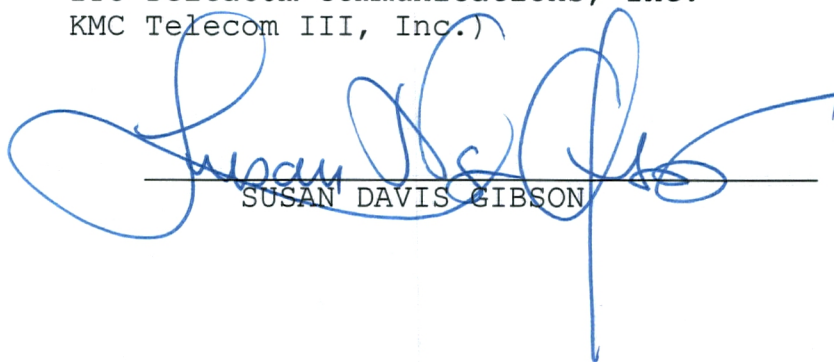(NewSouth Communications Corp.)

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